

# **Supporting Information**

## **Solid lipid nanoparticles of curcumin designed for enhanced bioavailability and anti-cancer efficiency**

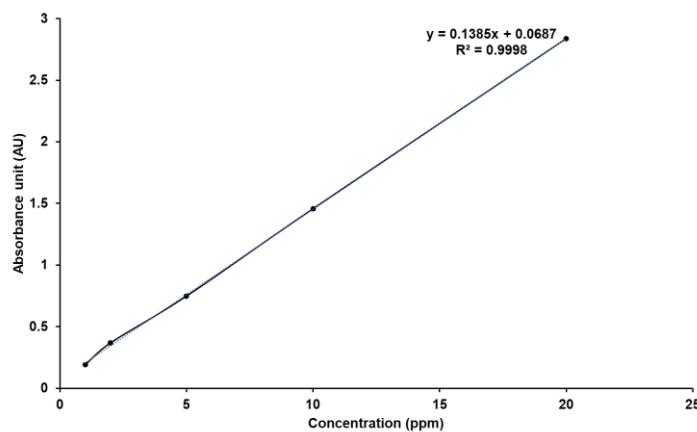
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## Supplementary Informations



**Figure S1.** Linearity data of Cur standard stock solution in MeOH.

**Table S1.** Precision data obtained from the developed analysis of Cur.

No.	Recovery (%)
1	100.00
2	100.48
3	102.12
4	101.46
5	101.04
6	100.12
Average (%)	100.87
SD (%)	0.75
RSD (%)	0.74

**Table S2.** Accuracy data obtained from the developed analysis of Cur.

Drug (ppm)	No	Recovery (%)	Average (%)	SD (%)	RSD (%)
1	1	100.00			
	2	99.48	99.84	0.26	0.26
	3	100.04			
5	1	100.00			
	2	100.48	100.86	0.91	0.90
	3	102.12			
20	1	100.00			
	2	99.71	99.84	0.12	0.12
	3	99.80			

**Table S3.** Infrared absorption ( $\text{cm}^{-1}$ ) of Cur structure (O-H (in phenol); C=O (carbonyl group); C=C (alkene); C=C-C (aromatic ring); and R-O-C stretching) in Cur and formulations (F1, F2, and F3).

	O-H ( $\text{cm}^{-1}$ )	C=O ( $\text{cm}^{-1}$ )	C=C ( $\text{cm}^{-1}$ )	C=C-C ( $\text{cm}^{-1}$ )	R-O-C ( $\text{cm}^{-1}$ )
Cur	3014	1628	1598	1508, 1428	1278
F1	-	-	-	1406	-
F2	-	-	-	1406	-
F3	-	1636	-	-	-

**Table S4.** Infrared absorption ( $\text{cm}^{-1}$ ) of lipid structure ( $\text{CH}_2$ ,  $\text{CH}_3$ ;  $\text{C=O}$ ; and  $\text{COOH}$  stretching) in lipids (LA, PA, and SA) and formulations (F1, F2, and F3).

	$\text{CH}_2, \text{CH}_3 (\text{cm}^{-1})$	$\text{C=O} (\text{cm}^{-1})$	$\text{COOH} (\text{cm}^{-1})$
LA	2918, 2850	1702	1465
PA	2918, 2850	1702	1465
SA	2918, 2850	1702	1465
F1	2971, 2900	-	-
F2	2971, 2900	-	-
F3	-	-	-

**Table S5.** Cell viability (%) of free Cur solution, F1, F3, F8, and F10 for cytotoxicity against HeLa cell. The concentration range of all compounds was 1.0 to 10.0  $\mu\text{M}$ . The percentage of cell viability was determined by WST assay. Error values represent the standard deviation of three replicate experiments.

Concentration ( $\mu\text{M}$ )	1	2.5	5	10
Cur	$118.01 \pm 16.79$	$103.66 \pm 1.29$	$96.12 \pm 9.87$	$85.43 \pm 10.88$
F1	$101.83 \pm 7.51$	$94.80 \pm 2.72$	$61.42 \pm 9.25$	$54.10 \pm 18.92$
F3	$94.58 \pm 18.38$	$53.00 \pm 5.50$	$51.68 \pm 11.23$	$41.65 \pm 12.56$
F8	$56.95 \pm 11.87$	$37.63 \pm 13.06$	$29.06 \pm 2.60$	$24.74 \pm 12.39$
F10	$52.78 \pm 14.51$	$28.26 \pm 8.79$	$24.89 \pm 8.58$	$21.16 \pm 6.30$

**Table S6.** Cell viability (%) of free Cur solution, F1, F3, F8, and F10 for cytotoxicity against A549 cell. The concentration range of all compounds was 1.0 to 10.0  $\mu\text{M}$ . The percentage of cell viability was determined by WST assay. Error values represent the standard deviation of three replicate experiments.

Concentration ( $\mu\text{M}$ )	1	2.5	5	10
Cur	$97.00 \pm 5.18$	$91.70 \pm 13.02$	$80.78 \pm 18.32$	$70.94 \pm 1.38$
F1	$76.99 \pm 1.93$	$81.57 \pm 0.47$	$74.28 \pm 4.83$	$76.67 \pm 5.26$
F3	$69.57 \pm 2.89$	$56.13 \pm 4.01$	$58.72 \pm 7.81$	$52.75 \pm 7.86$
F8	$52.26 \pm 4.48$	$29.62 \pm 4.10$	$27.11 \pm 2.71$	$26.62 \pm 2.91$
F10	$50.53 \pm 2.83$	$22.25 \pm 2.46$	$25.02 \pm 2.79$	$23.93 \pm 2.12$

**Table S7.** Cell viability (%) of free Cur solution, F1, F3, F8, and F10 for cytotoxicity against CT-26 cell. The concentration range of all compounds was 1.0 to 10.0  $\mu\text{M}$ . The percentage of cell viability was determined by WST assay. Error values represent the standard deviation of three replicate experiments.

Concentration ( $\mu\text{M}$ )	1	2.5	5	10
Cur	$117.66 \pm 4.89$	$125.54 \pm 9.86$	$100.73 \pm 14.83$	$111.19 \pm 11.13$
F1	$107.17 \pm 18.55$	$100.68 \pm 3.40$	$80.03 \pm 2.72$	$67.32 \pm 16.15$
F3	$96.41 \pm 11.18$	$90.94 \pm 3.88$	$71.95 \pm 8.03$	$58.42 \pm 17.46$
F8	$79.99 \pm 6.94$	$57.81 \pm 13.43$	$55.86 \pm 15.08$	$49.54 \pm 14.48$
F10	$58.68 \pm 5.03$	$49.13 \pm 2.30$	$47.79 \pm 14.08$	$44.03 \pm 16.58$